



**TERREAL COOLMAX™**

**Premium Advance CPA9**



**Multi Layers, Multi Foils, Superior Reflective Insulation for Advance Performance in R and U Values!**

The New Advanced Thermal Reflective Insulation Solution is made of 17 layers, combining layers of pure (99.4%) aluminium foil, highly reflective foil, separated by layers of polyester wool, and polyethylene bubble. All 17 layers are structured together to form a thin yet powerful insulating solution.

CoolMax™ Premium Advance is safe, clean, and much thinner compare with bulky and conventional insulation products.

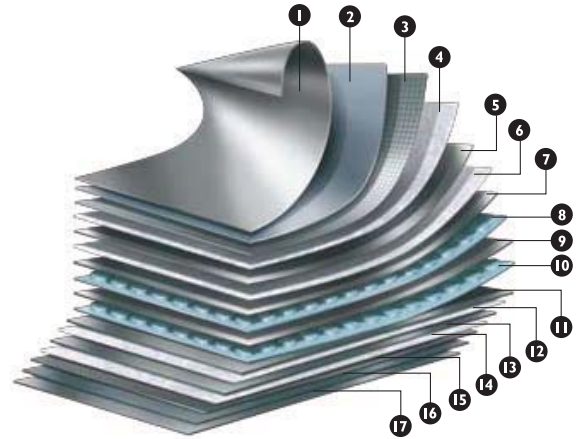
CoolMax™ Premium Advance is truly an Advance and ideal solution to achieve minimum U value (heat transmittance) and prevent heat gain in building components in tropical climate zones such as Malaysia & Singapore.



Roll size	Coverage	Roll Weight
<b>1.2m(W) x 20m(L) x 48mm(T)</b>	<b>24m<sup>2</sup></b>	<b>13kg</b>

**Structure of Terreal CoolMax™ Premium Advance**

No other insulation material provides equivalent or similar acoustic and heat insulation properties.



- High Resistance - Anti Corrosive Treatment - No. 1 & 17
- High Purity, Low Emissivity Aluminium Layer - No. 2 & 16
- High Reflective Foil Layer - No. 5, 7, 9, 11 & 13
- Reinforcing Net - No. 3 & 15
- Thermally Insulating Air Bubble Layer - No. 8 & 10
- Fire Retardant Polyester Wools - No. 4, 6, 12 & 14

**Technical Data**

PROPERTY	UNITS	COOLMAX™ PREMIUM ADVANCE
Nominal Thickness	mm	48
Emissivity (ASTM C 1371)	%	3
Reflectivity (ASTM E 408)	%	97
Heat Resistance (ASTM C 236)	m <sup>2</sup> x °C / w	4.00 (typical residential tiled roof) 4.50 (typical residential metal roof) 5.00 (typical commercial roof with ceiling)
Scratch Resistance		Both Sides
Noise Reduction Coefficient (ASTM E-384)	%	75% to 90%
Surface Flame Spread (BS 476:Part 7)		Class 1
Fire Propagation Test (BS 476:Part 6)		Comply*
Fire Standards For Japan Market ISO 5660-1 (Test done by GBRC, Japan)		Comply
Fire Hazard Properties According To AS/NZ 1530 Part 3, 1999		Pass
Fungal Resistance Test (ASTM C 1338)		No fungal growth
Water Vapor Transmission (ASTM-E-96)	g / ft <sup>2</sup> .hr	0.0018 (method A)
Dry Delamination (AS/NZS 4201.1)		Pass
Wet Delamination (AS/NZS 4859.1) (Appl)		Pass
Surface Corrosion (AS/NZS 4859.1) (Appl)		Pass*
Mean Ignition Time	seconds	0
Mean Flame Propagation Time	seconds	0
Mean Heat Release Integral	kJ/m <sup>2</sup> /remain	0
Mean Smoke Release	density/m	0.006

Terreal CoolMax™ Premium Advance are designed and manufactured under control of a Quality Management System, which meets the requirements of ISO 9001:2000 as certified by :



**Key Benefits**



**Acoustic**  
up to 85% NRC



**Advanced Thermal Performance**  
reflecting 97% of radiation heat



**3 in 1**  
provide a protective insulation barrier, radiant barrier and waterproofing membrane



**No Health Hazards Fiber Free**  
anti bacteria and anti fungal, non-asthmatic and poses no health and safety risks



**Easy Installation**  
no wire mesh no additional protective film fast & easy



**Fire Retardant**  
Achieved Class 0 Classification & all International Standards



**Energy Saving, Cost Saving**

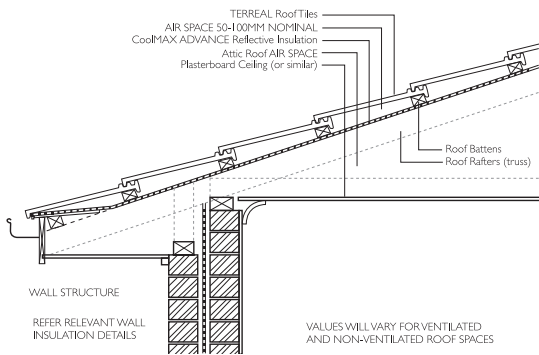


**Long Lasting**

\* All products are supplied with high resistance (H.R.) treatment against corrosion as standard.

**Terreal CoolMax™ Premium Advance performs better than other types of insulation in acoustic and heat insulation properties:**

	Thermal Efficiency in Summer	Thermal Efficiency in Winter	Gain in Living Space	Acoustic Performance	Durability	Ease of Installation	Value for Money Over Time
<b>Terreal CoolMax™ Premium Advance</b>	<b>* * * *</b>	<b>* * * *</b>	<b>* * * *</b>	<b>* * *</b>	<b>* * *</b>	<b>* * * *</b>	<b>* * *</b>
Mineral Wool	* *	* * * *	*	* * * *	* *	*	* *
Polystyrene Foam	* *	* * * *	*	* * *	* *	* *	* *



Thermal Performance evaluation and certification was conducted by certificate energy engineer in Australia based upon AS/NZS 4859.1, The Australian Institute of Refrigeration Air-conditioning & Heating (AIRAH) Handbook, the ASHRAE Fundamentals Handbook. The certification process conform R & D Laboratories Services (USA) for thermal resistance of reflective insulation materials in buildings.

	R Value m²·k/W
Outside air film	0.040
Terreal Clay Roof Tiles	0.023
100+mm sealed air cavity	1.361
<b>CoolMax™ Premium Advance</b>	<b>1.290</b>
Unventilated reflective attic	1.090
10mm plasterboard	0.059
Indoor air film	0.160
<b>Total R</b>	<b>4.023</b>
<b>U = 0.249 w/m²</b>	

**Certificates & Approvals**

CERTIFICATION	COUNTRY	STANDARD	TEST RESULT	CERTIFICATION BODY
Quality Management System	International	ISO 9001:2000	Comply	
Product Safety in Food Packaging Applications	International U.K.	HACCP BRC / IOP	Comply	
FIRE SAFETY	United States	ASTM E 84 Equivalents: UL 723 ANSI/NFPA#255 UBC No. 8-1	Class A	SGS U.S. Testing Company Inc.
	Japan	ISO 5660	Non-combustible	General Building Research Corp. of JAPAN Officially approved By the Ministry of Land, Transport and infrastructure
	European Union	EN 13501-1:2000	B - s2, d0	Warrington Fire Research Centre Ltd. - U.K.
	France	NF P 92 - 507	M1	SNPE-Laboratoire d'Essais au Feu - France
	Spain	UNE 23-727-90	M1	CIDEMCO - Spain
	Germany	DIN 4102	B1	HT Troplast AG - Germany
	U.K.	BS 476:Part 7	Class 1	Warrington Fire Research Centre Ltd. - U.K.
	Malaysia / Singapore	BS 476:Part 7 BS 476:Part 6	Class 1 Class 0	Fire and Rescue Department Malaysia, (JPBM:PPP/005/14/79) Singapore Productivity & Standards Board (PSB Corporation)
Australia	AS 1530 Part 3	Pass all categories	APL, Applied Physics Laboratories, New Zealand	
ASBESTOS FREE	International	X-ray diffraction method RTM-2 (AIA)	No asbestos fibres identified No asbestos fibres found	Ministry of National Infrastructures, Geological Institute "Millennium Hygiene" - Environmental measurement
	United States	ASTM C 236	1,567 m² °C / W	Celotex Corporation Testing Services, U.S.A.
THERMAL RESISTANCE MEASUREMENT	European Union	DIN 52.611	1,801 m² °C / W	CIDEMCO - Spain
	Korea	KS F 2273	1,695 m² °C / W 3,550 m² °C / W (multiple layers)	Fire Insurers Laboratories of Korea [FILK]
	United States	ASTM C 236	R=21 Btu·in/(hr·ft²·F)	Geo Science Laboratory, San Diego, California
THERMAL CONDUCTIVITY				
Emmissivity	Singapore	ASTM C 1371	0.04	Singapore Productivity & Standards Board (PSB Corporation)
Reflectivity			96%	
Emmissivity	Australia	ASTM E 408	0.03	The University of Western Australia
Reflectivity			97%	
Moisture Barrier	United States	ASTM E 96	0.018 perm	SGS U.S. Testing Company Inc.
Mold Resistance	United States	ASTM C 1338	No fungal growth	
Thermal Stability Tests	United States	ASTM D 1204	< 0.25% change	Technion Research & Development Foundation Ltd.
		ASTM C 1263	No Cracks / No delamination	
TECHNICAL APPROVALS	Poland	AT-15-5167/2002	Approved	Institut Techniki Budowlanej
	Spain	DIT	Approved	Instituto Eduardo Torroja de Ciencias de la Construcción
	Australia	AS/NZS 4859.1:2002	Approved	JMF, Australia
	United States	AS/NZS 4859.1:2002	Approved	R&D Services, U.S.A.

DISCLAIMER: The information contained in this Technical Data Sheet is the result of extensive laboratory testing performed on our products during standard production. The values given here are typical average values and are believed to be correct to the best of our knowledge, but user should not rely on them absolutely and must confirm their validity and suitability in each particular case. Terreal Malaysia Sdn Bhd makes no guarantee of results and assumes no obligation or liability in connection with this advice.

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